

REMARKS/ARGUMENTS

Status of the Application

Prior to the entry of this amendment, claims 1-19 were pending in this application. The Office Action rejected the following claims:

Claims 1-3 and 7-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,812,068 to Wisler *et al.* ("Wisler");

Claims 4,5, 13 and 15-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wisler in view of European Patent Application No. 0551134 to Jogi *et al.* ("Jogi");

Claims 6 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wisler in view of U.S. Patent No. 4,216,536 to More ("More"); and

Claims 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Wisler in view of Jogi and U.S. Patent No. 6,382,331 to Pinckard ("Pinckard").

In this amendment, claims 1, 10, 11-13 and 15 are amended and claim 9 is canceled. No new matter is added by the amendments. Applicant respectfully requests reconsideration of this application as amended.

35 U.S.C. §102(a) Rejection

As amended, independent claim 1 includes the limitations that a downhole processor in communication with first and second sensors calculates a statistical relationship between first and second downhole parameters sensed by the two sensors, respectively, and a surface processor generates a multi-channel data envelope from the calculated statistical relationship. As such, the invention of claim 1 provides for downhole data compression (calculating a statistical relationship between parameters) and surface data decompression (generating a multi-channel data envelope). The method is advantageous because the calculated statistical relationship transmitted to the surface comprises statistical relationship data

from the two parameters that is then used to generate a data envelope that shows the changes in the relationship between the parameters and may be analyzed to determine trends in the behaviour of the individual parameters (since the relationship between the parameters is statistical it may itself be simply and effectively statistically analyzed). As such, the present invention provides a method of downhole to surface data transmission that, by way of the compression method – calculating a statistical relationship between two sensed parameters – provides for effective surface data analysis.

As noted in the Office Action, the Wisler reference does not teach calculating a statistical relationship between two downhole parameters at a downhole location and then communicating this relationship to the surface. Nor does Wisler teach or suggest generating a multi-channel data envelope from the calculated statistical relationship at the surface. To the contrary, Wisler discloses a method for analyzing parameters downhole and transmitting “answers” to the surface. (Wisler col. 5, ll. 47-63).

As noted above, transmission of a calculated statistical relationship between the two parameters is advantageous in comparison to transmission of answers because such data transmission provides for the subsequent generation of a data envelope of the statistical relationship that shows relationship variance and may allow for analysis of the relationship and of the root parameters. Because of these advantages, Applicants respectfully submit that if it were obvious to use statistical compression, Wisler would have, at the very least, mentioned statistical compression or statistical compression would have been previously developed.

Furthermore, no references have been provided in the Office Action that teach or suggest combining and/or substituting the teachings of Wisler with statistical compression and decompression. As such, Applicants respectfully submit that it is only with impermissible hindsight, using the claims of the present invention as a template, that it would appear obvious to combine Wisler with the statistical compression and decompression elements of independent claim 1.

Consequently, Applicants respectfully submit that independent claim 1, as amended, is patentable over Wisler. Therefore, it is respectfully requested that the section 103 rejections of independent claim 1 and dependent claims 2-8 and 10-19 be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

In the event that a fee or refund is due in connection with this Amendment, the Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No 19-0615. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (617) 768-2270.

Respectfully submitted,



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